



TB-423

DB2 Version 9 For z/OS Migration

Issue Date: August 20, 2009
Effective Date: September 15, 2009
Section/Group: DTS Database Group
Submitted by: Brian Triptow
Approved by: Dean Zumbrunnen

Schedule

DB2 V9 migration, like V8, will take place in three phases; Compatibility Mode (CM), Enable New Function Mode (ENFM), and New Function Mode (NFM). The product will be ordered on September 1, 2009 and SMPE installation work will begin immediately thereafter. IBM software falls under the category of Single Version Licensing meaning that we must complete migration of all DB2 systems within one year or be billed for both Version 8 and Version 9.

The first DB2 subsystem to migrate will be DBS2 (system test) on CPU9. It will migrate to CM in early fall and tested thoroughly before proceeding to DBD1 (development) and DBP1 (production). There will be an overlap of phases by moving DBS2 to ENFM while DBD1 is still in CM and so forth; staggering phases and subsystems as they are tested and problems are resolved. The migration of all environments will be coordinated through the change management process with the intent of moving all DB2 subsystems to Version 9 before the end of 2009.

Overview

The official product name is DB2 Version 9.1 for z/OS, program number 5635-DB2. The abbreviated name is DB2 9 for z/OS. The program announcement occurred on May 2, 2006, with general availability on March 16, 2007. It is important to stay current on database software versions to ensure support from IBM and also to take advantage of enhancements to the product.

DB2 9 for z/OS enhances DB2's ability to handle new and enterprise applications. It improves functionality in the areas of LOBs, online schema evolution, Unicode, XML, SQL, utilities, security, and 64-bit virtual storage.

Connectivity

Connectivity to DB2 9 for z/OS requires software levels for DB2 Connect or DB2 UDB for Linux, UNIX, and Windows to be at a minimum of Version 9.1 fixpack 1, Version 8.1 fixpack 13, or Version 8.2 fixpack 6. Please verify that you are at the supported levels.

If you are using the JDBC Type 4 driver to connect directly to DB2 for z/OS, you do not need DB2 Connect installed, but you DO need to be licensed to use DB2 Connect. The JDBC driver can take the place of the DB2 connect software but requires the same license.

Cost savings

Reduced total cost of ownership occurs through improved SQL, the addition of XML, and the reduction in database administration tasks. zIIP provides extra capacity and reductions in DB2 costs for some distributed, parallel query, and utility index workloads.

The following list of Version 9 enhancements are available (and will be tested) in NFM. Please let the DB2 staff know if your application intends to exploit any of these enhancements.

| | |
|---|--|
| 1 | Availability |
| | WLM exploitation |
| | RENAME column |
| | Universal Table Spaces (partition-by-growth, ranger-partitioned) |
| | Clone tables support |
| | REFRESH EARLY Code |
| | Conditional Restart Log Truncation by Timestamp |
| | Cancel DB commands |
| | ALTER TABLE ... long varchar to varchar |
| | Automatic creation of objects |
| | SMS constructs |

| | |
|---|---|
| 2 | Stored Procedures |
| | Native SQL stored procedures |
| | Nested compound statements in SQL stored procedures |
| | Debugging and Unified Debugger |
| | Changes regarding external Stored Procedures |

| | |
|---|---|
| 3 | SQL Enhancements |
| | New data types |
| | INSTEAD OF trigger |
| | MERGE statement |
| | UPDATE, DELETE, and MERGE within SELECT statement |
| | ORDER BY and FETCH FIRST in subselect |
| | TRUNCATE statement |
| | UNION, INTERSECT, and EXCEPT statements |
| | New built-in functions |
| | CURRENT SCHEMA |
| | Cultural sort |

| | |
|---|-----------------------------------|
| 4 | Security |
| | Three-tier architecture |
| | Trusted Context and Role |
| | Dynamic SQL auditing |
| | Already Verified Incoming Request |
| | Securing DBA activities |
| | Catalog tables |

| | |
|--|--|
| | Secure Socket Layers (SSL) and Trusted Context |
| | Enterprise Identity Mapping (EIM) |
| | WebSphere |
| | Auditability changes |
| | DB2 trace filtering |

| | |
|---|----------------------------------|
| 5 | Application Enablement |
| | Optimistic concurrency control |
| | Skip locked data |
| | LOB file reference variables |
| | FETCH CONTINUE |
| | IBM DB2 driver for JDBC and SQLJ |
| | Remove DB2 private protocol |
| | DB2 Spatial Support |

| | |
|---|---|
| 6 | Utilities |
| | LOAD |
| | UNLOAD |
| | RUNSTATS |
| | REORG |
| | CHECK DATA |
| | CHECK LOB |
| | COPY |
| | RECOVER |
| | REPORT TABLESPACESET |
| | MODIFY RECOVERY |
| | REBUILD INDEX |
| | TEMPLATE |
| | BACKUP/RESTORE SYSTEM |
| | CATMAINT |
| | VOLUME level COPY available because we are z/OS 1.8 |
| | Online CHECK LOB |
| | Online CHECK DATA |
| | REORG LOBS > 32K and 2MG |
| | Test INCREMENTALS on BACKUP SYSTEM |
| | DSN1COMP to estimate Buffer Pools |

| | |
|---|--|
| 7 | Performance and Scalability |
| | zIIP |
| | Virtual storage management |
| | Index compression |
| | Expect higher CPU usage in CM mode; lower in NFM |
| | Enhanced sequential key insert |
| | REOPT AUTO |
| | RLF enhancements |
| | Histogram statistics |
| | Optimization of complex query |
| | Global query optimization |

| | |
|--|--|
| | WLM-assisted buffer pool management |
| | LOB performance improvements |
| | Miscellaneous performance improvements |
| | ALTER BUFFERPOOL AUTOSIZE(YES) |

| | |
|---|------------|
| 8 | XML |
|---|------------|

| | |
|---|---|
| 9 | Miscellaneous |
| | NOT LOGGED tablespace |
| | RENAME INDEX |
| | Buffer management |
| | New –DISPLAY THD options |
| | ZPARMS IMPDSDEF, IMPTSCMP |
| | CREATE STOGROUP options of MGMTCLAS, etc. |
| | ALTER STOGROUP (will it allow migrate to different stogroup?) |
| | Unified debugger |
| | TRUNCATE – to empty table fast |
| | CURRENT SCHEMA |
| | Look at new security enhancements: ROLES, TRUSTED CONTEXT. I don't think they will work for us. |
| | SSL is available w/ V9 |
| | ZPARM – MAXOFILR |
| | New –DISPLAY THD options |
| | ZPARMS IMPDSDEF, IMPTSCMP |
| | CREATE STOGROUP options for SMS, ie. STORCLAS, MGMTCLAS, etc. |

Contact: Brian Triptow
 1 State Office Bldg Flr 6
 Salt Lake City, Utah 84114
 (801) 538-3453
 btriptow@utah.gov